

IN THE CLAIMS:

Please cancel claims 1-9 without prejudice or disclaimer of the subject matter thereof.

The following is a complete listing of claims in this application.

Claims 1-10 (canceled).

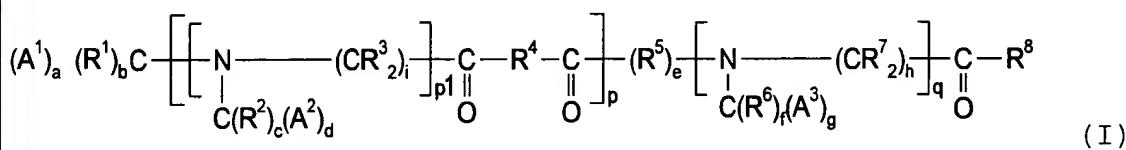
11. (new) Process for separating lanthanides from one another and/or lanthanides from actinides and/or actinides from one another and/or from other transition metals in an aqueous medium, comprising the steps of:

a) treating of the aqueous medium with at least one ligand selected from the group consisting of ethylenediaminetetraacetic acid, linear polyamino acids and cyclic polyamino acids;

b) (nano)filtering the aqueous solution treated with the at least one ligand through a membrane, under a transmembrane pressure greater than or equal to 0.01 MPa, so as to collect a retentate enriched in at least one species of lanthanide, actinide or other transition metal which is at least partially complexed with the ligand, and a permeate impoverished in said species; and

c) optionally recovering the ligand/species complexes to be separated from the retentate, and treating the complexes with at least one decomplexing agent so as to separate the at least one ligand from the species.

12. (new) Process according to claim 11, wherein the at least one ligand is a linear polyamino acid of formula (I):



in which:

- a = 0 or 1 and b = 2 or 3;
- c = 2 or 3 and d = 0 or 1;
- p = 0 to 3;
- p1 = 1 to 4;
- e = 0 or 1;
- q = 1 to 4;
- f = 2 or 3 and g = 0 or 1;
- h and i, which are identical or different, are each 1, 2 or 3;
- A¹, A² and A³ are identical to or different from one another and correspond to a monovalent acid group selected from the group consisting of:

' -COOR, -PO₃R' and -SO₃R'',

where R, R', R'' = H or a cation;

- the radicals R₁ are identical to or different from one another and correspond to:

Δ H,

Δ C₁-C₁₀ alkyl or

Δ R⁹R¹⁰NC—, where a = 0 and R⁹ and R¹⁰ are identical or

different and each correspond to hydrogen or a hydrophilic monovalent radical selected from the group consisting of amino, (poly)hydroxylated, alkoxylated and (poly)etherified hydrocarbon radicals of the (cyclo)alkyl, aralkyl, alkylaryl, (cyclo)alkenyl, aralkenyl, alkenylaryl or aryl type, and mixtures thereof;

- the radicals R² are identical to or different from one another;
- the radicals R³ are identical to or different from one

another;

- the radicals R⁶ are identical to or different from one another;

- the radicals R⁷ are identical to or different from one another,

R², R³, R⁶ and R⁷ being identical to or different from one another and corresponding to H or a C₁-C₁₀ alkyl;

- the radicals R⁴ are identical to or different from one another and correspond to a hydrophilic divalent group selected from the group consisting of aromatic amino groups, hydroxylated groups, aromatic and alkyl amino and/or hydroxylated groups, aromatic and (cyclo)alkylenic amino and/or hydroxylated groups and (cyclo)alkylenic amino and/or hydroxylated groups, said groups optionally containing alkoxy and/or (poly)ether radicals,

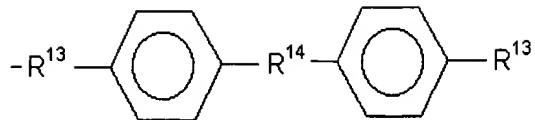
- the divalent group R⁵ is an alkylene group or a group having the same definition as R⁴; or

- the group R⁸ corresponds to a hydroxyl, to A⁴ having the same definition as A¹, A² and A³, to hydrogen or to -NR⁹R¹⁰, where R⁹ and R¹⁰ are identical to or different from one another and are a hydrophilic monovalent radical selected from the group consisting of amino, (poly)hydroxylated, alkoxyLATED and (poly)etherified hydrocarbon radicals and mixtures thereof, the hydrocarbon radicals being of the (cyclo)alkyl, aralkyl, alkylaryl, (cyclo)alkenyl, aralkenyl, alkenylaryl or aryl type.

13. (new) Process according to claim 12, wherein R⁹ and R¹⁰ each corresponds to a C₁-C₁₀ hydroxyalkyl, a C₁-C₁₀ alkoxy or a polyol.

14. (new) Process according to claim 13, wherein the polyol is a hydrogenated saccharide.

15. (new) Process according to claim 12, wherein R⁴ is a group



where R^{13} is an amino group and R^{14} is a C_1-C_4 alkylene.

16. (new) Process according to claim 12, wherein R^8 is a C_1-C_{10} hydroxyalkyl, a C_1-C_{10} alkoxy or a polyol.

17. (new) Process according to claim 16, wherein the polyol is a hydrogenated saccharide.

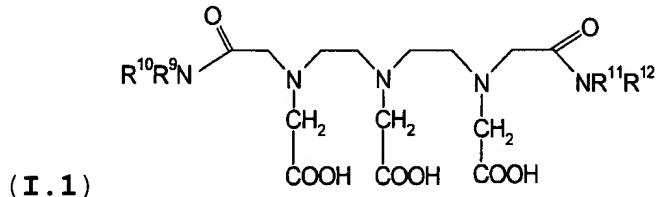
18. (new) Process according to claim 11, wherein the transmembrane pressure is greater than or equal to 0.1 MPa.

19. (new) Process according to claim 18, wherein the transmembrane pressure is between 0.2 and 1.0 MPa.

20. (new) Process according to claim 11, wherein the ions of the metal(s) to be separated are subjected to selective complexation.

21. (new) Process according to claim 11, wherein the at least one ligand has a molecular weight which is greater than a known cut-off threshold of the nanofiltration membrane.

22. (new) Process according to claim 11, wherein the at least one ligand is of formula (I.1):



in which R^9 , R^{10} , R^{11} and R^{12} are identical to or different from one another and each is a hydrophilic monovalent radical.

23. (new) Process according to claim 22, wherein the

hydrophilic monovalent radicals are selected from the group consisting of ethanoyl, methoxyethyl and sorbitoyl radicals.

24. (new) Process according to claim 11, wherein several metal species belonging to the lanthanide and/or actinide family are separated, said separation being effected by successive complexations of the ions of each of these species to be separated, a selective ligand being chosen for each species in step a), a nanofiltration in step b) and a decomplexation/collection in step c) being carried out after each complexation.

25. (new) Process according to claim 11, wherein the nanofiltration membrane is made of at least one material selected from the group of polymers consisting of polyaramides, sulfonated polysulfones, polybenzimidazolones, grafted or non-grafted polyvinylidene fluorides, polyamides, cellulose esters, cellulose ethers, perfluorinated ionomers, associations of these polymers, and copolymers obtained from monomers of at least two of these polymers.

26. (new) Process according to claim 11, wherein the nanofiltration membrane has a cut-off threshold of 100 - 5000 g/mol.

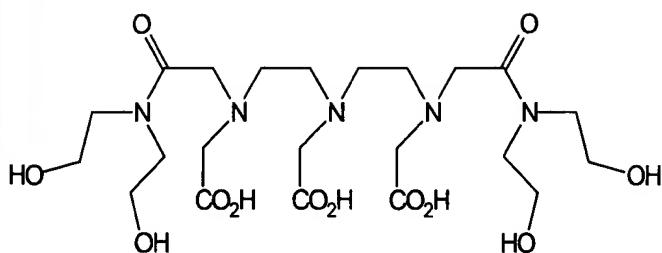
27. (new) Process according to claim 26, wherein the cut-off threshold is 200-2000 g/mol.

28. (new) Process according to claim 27, wherein the cut-off threshold is 500-1500 g/mol.

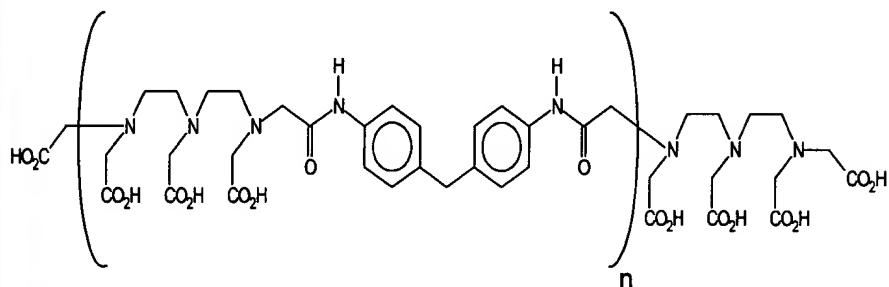
29. (new) Process according to claim 11, wherein said treating takes place in an aqueous medium at a pH between 1 and 6.

30. (new) Process according to claim 11, wherein the aqueous medium treated is derived from spent nuclear fuel.

31. (new) A complexing agents having one of the formulae:

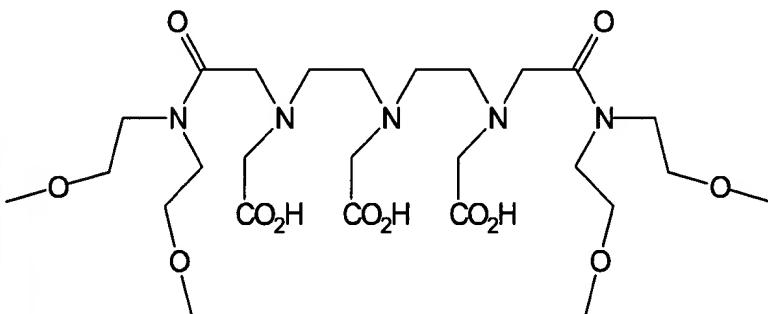


(I'.1)



(I'.2)

n being between 1 and 100, and



(I'.3).

32. (new) Complexing agent according to claim 31, of formula (I'.2) wherein n is between 1 and 10.